DEVELOPING LIQUID FUELS SPECIFICATIONS: THE AUSTRALIAN EXPERIENCE

John Karas

ABSTRACT

Economies in the Asia/Pacific are moving towards tighter and tighter liquid fuel specifications. These changing specifications are driven by the needs of new technology, industry policy and by clean air objectives. They will necessarily involve huge investments, industry rationalisation and, quite possibly, demand/supply imbalances. In order to ensure that demand/supply imbalances do not occur, APEC economies should work towards a coordinated approach to information sharing and policy development.

PREAMBLE

This paper has been written by the Petroleum Branch of the Australian Commonwealth Department of Industry, Science and Resources. The Department has been closely involved in the development of liquid fuel specifications in Australia, and will continue to participate in the development of industry policy concerning liquid fuel specifications and their operation.

This paper covers a number of general topics.

First, there will be a discussion of the main factors that are driving the push for cleaner fuels in Australia. These factors doubtless mirror similar drivers in other economies in the push for cleaner fuels.

Secondly, there will be a brief rundown of the consultation process and general principles, which have been adopted in Australia in determining the fuel specifications. A great deal of effort has been put into ensuring that the consultative process was both broad and timely, in a bid to ensure that industry policy decisions allowed sufficient time for industry to adjust.

The process of developing new clean fuel specifications in Australia is not yet complete. However, where possible, the paper outlines the current standards for the period 2002 to 2006 for petrol (gasoline) and diesel. While, to some extent, these are based on Euro standards, they have a few "Australian" features, which recognise peculiarities of Australian requirements, both environmental and economic.

There are important economic issues associated with the demands that the new fuel standards are going to impose on the refining industry. These are discussed in this paper, along with their ramifications, not only for Australia, but also for the Asia Pacific region in general.

Finally, there is a discussion of the implications for APEC of new clean fuel specifications, in Australia and regionally and, in particular, the paper explores the ideas behind the Trade and Investment Liberalisation and Facilitation (TILF) project proposed under the APEC Oil and Gas Program.

1 BACKGROUND

An obvious factor driving governments across the world to implement new environmentally friendly fuels is the need to have cleaner air. This is especially important in the major cities of Australia, and is no doubt a feature facing all APEC economies.

A second factor forcing changes to fuel specifications is the push from the motor vehicle manufacturers to produce a world car and to develop engines which can be sold throughout the world. Carmakers are aiming to produce engines, which have much improved fuel economy and much improved emissions. To meet these new and more stringent demands, engine makers are in turn demanding cleaner fuels.

In addressing these environmental demands and the push for a single standard for fuels to ensure the new world engines operate to their peak performance there has to be a significant investment by petroleum refiners. This requirement raises important policy issues in Australia. The investment strategies of the refiners, while driven by environmental and greenhouse demands will have implications for the structure of the refining industry in Australia. The investment decisions will obviously be taken against the backdrop of the global petroleum industry developments.

2 PROCESS OF DEVELOPING STANDARDS IN AUSTRALIA

Following a consultancy, which looked at the costs and benefits of various clean fuel options, the Australian Environment Department, Environment Australia, released a number of discussion papers to facilitate public discussion and consultation on the setting of proposed national fuel quality standards. The Department of Industry, Science and Resources was closely involved in this process.

The discussion papers covered the international developments for cleaner air, the international developments in engine technology and factors such as the health effects of emissions, as well as proposed standards for fuel parameters. Other important features of Government consideration of the new fuel specifications included the excise and taxation treatment of the new fuels, with the Commonwealth Treasury being involved in this aspect of the process.

These papers formed the basis for the public consultation program, where the various key stakeholders were given an opportunity to have their say about the Government's approach to new fuel specifications. Obviously a major player in the consultation process has been the petroleum refining industry. Automotive manufacturers and fuel users were also consulted when developing the new clean fuel specifications.

The broader community was also consulted in the process of considering the new fuel specifications.

In developing the new fuel specifications there have been a number of balances that have had to be made.

- Important amongst these is the need to **balance** the cleaner environment against the viability of the domestic refining industry.
- A first step principle adopted was the imperative of **removing** those components from petrol (gasoline) and diesel, which are **known to have adverse health risks**.
- Given the small size of the Australian transport fuels market there is no advantage in developing a city standard and a economy (or non-urban) standard. Indeed, the costs associated with further fragmenting the market in this way could not be justified. As a consequence, there is to be a **single national standard** for the new fuels.
- Along similar lines, the standards will apply to both imported products (gasoline and diesel) as well as domestically refined petroleum products. The key focus is to ensure that there are **no barriers to trade** in petroleum products through the equal treatment of imports and local product. Similarly, there is a need to ensure that substitutability of similar, differently excised, products is not readily available, since this can lead to a distortion in the market, and can also lead to consumers using products, either deliberately or not, which are not optimal for either vehicle usage or clean air objectives.

Given the global nature of the petroleum and automotive industries, certain aspects of clean fuel specifications will be driven by the need to harmonize internationally to enable the new engines to operate efficiently. Such a specification is technology enabling, and in this situation, international standards are applied where possible.

Australia has produced, for public consultation, a fuel specification, which is generally based on the Euro specifications for petrol and diesel. Copies of the current draft specification are

available.

The general harmonization with the Euro specifications and the Euro timetable is based on the principles outlined above.

3 WIDER ECONOMIC IMPLICATIONS

Australia is a small market. However, it does not operate in isolation; quite the contrary in this world of global companies. As such, it would be unable to go against the current trend to lower sulfur fuels and the changes in factors such as aromatics.

If Australia were to get too far out of step, it would eliminate its ability to sell refined product as a part of the global oil refining industry. Furthermore, fuel specifications outside the general world trends would close off some avenues of supply for the Australian consumer.

Areas where the Australian standards differ from those being implemented internationally reflect situations where Australia's current specifications already meet or exceed international requirements, such as the exclusion of MTBE.

Similarly, the transition to the 2005/6 endpoints is flexible, to accommodate the investment schedules demanded of various refiners and the differences in Australia such as the fleet composition etc.

By way of some background the Australian petroleum refining industry exhibits the low and declining profitability that exists across the world.

By comparison to international refineries, Australian refineries are generally of smaller scale than competitors in Singapore or the Middle East. Their costs of production are slightly higher as a result. They do, however, have a slight competitive advantage because of the transport costs that international refiners face if they wish to service the Australian market, although this advantage is diminishing as shipping becomes more efficient.

The four refining companies in Australia are members of the global oil industry: Mobil/Exxon, BP/Amoco, Caltex/AP and Shell.

The decisions to invest in Australia to upgrade refineries to meet the new fuel specifications are consequently taken in a global context or framework. Should the cost of investment to meet new clean fuel specifications reach the point where the returns on that investment are not internationally competitive, the companies may choose to invest in other locations and the Australian refining industry would decline as a result.

This is a real concern since it would necessarily involve the loss of jobs and a loss to gross domestic product,

This issue has taken this into account when developing the transition between now and the endpoint specifications to be established for the middle of this first decade of the 21 st Century. The ability of companies to meet timetables for new investment needs to be viewed realistically. There is little point in requiring investment within a prohibitively short time frame and forcing some or all of the major players out of the local scene.

Whatever happens, there will be implications for the balance between domestic production and imports. The outcomes would have consequential effects on investment and employment in Australia, and on Australia's trade balance, imports and exchange rates.

4 IMPLICATIONS IN THE APEC REGION

So what does this mean for the economies of APEC?

Firstly, it is clear that fuel specifications will tighten internationally. The push for lower sulfur and the removal of substances known to have adverse health impacts is a fact of life.

Secondly, demands on the automotive industry to improve fuel efficiency and reduce emissions provide some technological and economic imperatives for the petroleum refining industry.

The global nature of the automotive industry and the oil industry and the lack of large scale, economic and viable alternative fuel supplies mean that the petroleum refining industry has a continuing role to play in the foreseeable future of the transport fuel supply industry.

Consequently, all APEC economies will be challenged to implement fuel specifications along the lines of Australia. The nature of the regulatory changes and the investment response of the refining industry will change the supply demand dynamics in the APEC region.

This will give rise to changes in the source of fuels, the trade in fuels and crude oil and will affect the prices paid by consumers for transport fuels.

Governments throughout the region will need to be mindful of the market dynamics and the potential for supply disruptions and resulting price volatility for fuels unless the changes are managed in a coordinated manner.

This highlights the need for regional cooperation. What role can APEC take to ensure a smooth transition to tighter fuel specifications across the region? This is an issue upon which APEC needs to reflect.

Does APEC need wide fuel specifications? If so what might they be?

In moving to any new standard what refinery investment would be needed? Is the refining industry capable of meeting the financial challenge? Are there sufficient physical and technological resources to deliver refinery upgrades in the timeframe? Are investment incentive programs required? What will they cost?

Can we forecast shortages or surpluses? Can we forecast possible price volatility? Should we bother?

Do changing fuel specifications raise issues of supply security in petroleum product markets? What would be the economic impact on economies of a mismatch of between supply and demand if refinery investment does not match either the regulatory requirements of economies or the technological demands of the transport industries?

These, and many more questions can be posed.

The APEC **Oil and Gas Program**, established under the **Expert's Group on Clean Fossil Energy (EGCFE)** of the **APEC Energy Working Group**, has a proposed project under the Trade and Investment Liberalisation and Facilitation program (TILF program). It is hoped that, if this gets off the ground, many of these questions can be answered.

This research program aims to provide an understanding of the approaches APEC economies are adopting for transport fuel specifications and the ability of refineries to meet these new specifications. Products covered by this would include diesel, jet fuel, gasoline and fuel oil. This would identify the prospects of mismatches in supply and demand.

The project would examine the role that the alternative fuels such as ethanol, gas to liquids diesel and others would play in meeting future transport fuel demand.

On this basis, the regional trade in crude oil and refined petroleum product can be assessed to identify possible security of supply problems and price volatility issues, which would be of concern to APEC economies.

While this project has not yet begun, its completion would seem to address many of the issues raised in this paper. In so doing, it would provide each and every economy in APEC with the necessary data and knowledge to make informed decisions about the process and direction of changes to fuel specifications in the region. This can only be of benefit to all.